



SEQUENCE LISTING

<110> Wyeth
Ozenberger, Bradley A.
Bard, Jonathan A.
Kajkowski, Eileen M.
Jacobsen, Jack S.
Walker, Stephen G.
Sophia, Heidi
Howland, David

<120> Beta-Amyloid Peptide-Binding Proteins and Polynucleotides
Encoding the Same

<130> 31896-67200 (AHP98126 P2)

<140> 09/852,100
<141> 2001-05-01

<150> US 09/774,936
<151> 2001-01-31

<150> PCT/US99/21621
<151> 1999-10-13

<150> US 09/172,990
<151> 1998-10-14

<150> US 60/104,104
<151> 1998-10-13

<150> US 09/060,609
<151> 1998-04-15

<150> US 60/064,583
<151> 1997-04-16

<160> 52

<170> PatentIn version 3.2

<210> 1
<211> 810
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1) .. (807)

<400> 1
atg cat att tta aaa ggg tct ccc aat gtg att cca cgg gct cac ggg 48
Met His Ile Leu Lys Gly Ser Pro Asn Val Ile Pro Arg Ala His Gly
1 5 10 15
cag aag aac acg cga aga gac gga act ggc ctc tat cct atg cga ggt 96
Gln Lys Asn Thr Arg Arg Asp Gly Thr Gly Leu Tyr Pro Met Arg Gly
20 25 30
ccc ttt aag aac ctc gcc ctg ttg ccc ttc tcc ctc ccg ctc ctg ggc 144
Pro Phe Lys Asn Leu Ala Leu Leu Pro Phe Ser Leu Pro Leu Leu Gly
35 40 45
gga ggc gga agc gga agt ggc gag aaa gtg tcg gtc tcc aag atg gcg 192

Gly	Gly	Gly	Ser	Gly	Ser	Gly	Glu	Lys	Val	Ser	Val	Ser	Lys	Met	Ala		
50						55					60						
gcc	gcc	tgg	ccg	tct	ggg	ccg	tct	gct	ccg	gag	gcc	gtg	acg	gcc	aga	240	
Ala	Ala	Trp	Pro	Ser	Gly	Pro	Ser	Ala	Pro	Glu	Ala	Val	Thr	Ala	Arg		
65					70				75					80			
ctc	ggt	ggg	gtc	ctg	tgg	ttc	gtc	tca	gtc	act	aca	gga	ccc	tgg	ggg	288	
Leu	Val	Gly	Val	Leu	Trp	Phe	Val	Ser	Val	Thr	Thr	Gly	Pro	Trp	Gly		
				85					90					95			
gct	gtt	gcc	acc	tcc	gcc	ggg	ggc	gag	gag	tcg	ctt	aag	tgc	gag	gac	336	
Ala	Val	Ala	Thr	Ser	Ala	Gly	Gly	Glu	Glu	Ser	Leu	Lys	Cys	Glu	Asp		
			100					105					110				
ctc	aaa	gtg	gga	caa	tat	att	tgt	aaa	gat	cca	aaa	ata	aat	gac	gct	384	
Leu	Lys	Val	Gly	Gln	Tyr	Ile	Cys	Lys	Asp	Pro	Lys	Ile	Asn	Asp	Ala		
	115						120					125					
acg	caa	gaa	cca	ggt	aac	tgt	aca	aac	tac	aca	gct	cat	ggt	tcc	tgt	432	
Thr	Gln	Glu	Pro	Val	Asn	Cys	Thr	Asn	Tyr	Thr	Ala	His	Val	Ser	Cys		
	130				135						140						
ttt	cca	gca	ccc	aac	ata	act	tgt	aag	gat	tcc	agt	ggc	aat	gaa	aca	480	
Phe	Pro	Ala	Pro	Asn	Ile	Thr	Cys	Lys	Asp	Ser	Ser	Gly	Asn	Glu	Thr		
145				150					155					160			
cat	ttt	act	ggg	aac	gaa	ggt	ttt	ttc	aag	ccc	ata	tct	tgc	cga		528	
His	Phe	Thr	Gly	Asn	Glu	Val	Gly	Phe	Lys	Pro	Ile	Ser	Cys	Arg			
				165				170					175				
aat	gta	aat	ggc	tat	tcc	tac	aaa	gtg	gca	gtc	gca	ttg	tct	ctt	ttt	576	
Asn	Val	Asn	Gly	Tyr	Ser	Tyr	Lys	Val	Ala	Val	Ala	Leu	Ser	Leu	Phe		
			180					185					190				
ctt	gga	tgg	ttg	gga	gca	gat	cga	ttt	tac	ctt	gga	tac	cct	gct	ttg	624	
Leu	Gly	Trp	Leu	Gly	Ala	Asp	Arg	Phe	Tyr	Leu	Gly	Tyr	Pro	Ala	Leu		
		195				200					205						
ggg	ttg	tta	aag	ttt	tgc	act	gta	ggg	ttt	tgt	gga	att	ggg	agc	cta	672	
Gly	Leu	Leu	Lys	Phe	Cys	Thr	Val	Gly	Phe	Cys	Gly	Ile	Gly	Ser	Leu		
	210				215						220						
att	gat	ttc	att	ctt	att	tca	atg	cag	att	gtt	gga	cct	tca	gat	gga	720	
Ile	Asp	Phe	Ile	Leu	Ile	Ser	Met	Gln	Ile	Val	Gly	Pro	Ser	Asp	Gly		
225				230					235					240			
agt	agt	tac	att	ata	gat	tac	tat	gga	acc	aga	ctt	aca	aga	ctg	agt	768	
Ser	Ser	Tyr	Ile	Ile	Asp	Tyr	Tyr	Gly	Thr	Arg	Leu	Thr	Arg	Leu	Ser		
				245					250					255			
att	act	aat	gaa	aca	ttt	aga	aaa	acg	caa	tta	tat	cca	taa			810	
Ile	Thr	Asn	Glu	Thr	Phe	Arg	Lys	Thr	Gln	Leu	Tyr	Pro					
		260						265									

<210> 2
 <211> 269
 <212> PRT
 <213> Homo sapiens

<400> 2

Met	His	Ile	Leu	Lys	Gly	Ser	Pro	Asn	Val	Ile	Pro	Arg	Ala	His	Gly		
1			5						10					15			
Gln	Lys	Asn	Thr	Arg	Arg	Asp	Gly	Thr	Gly	Leu	Tyr	Pro	Met	Arg	Gly		
			20					25					30				
Pro	Phe	Lys	Asn	Leu	Ala	Leu	Leu	Pro	Phe	Ser	Leu	Pro	Leu	Leu	Gly		
		35				40						45					
Gly	Gly	Gly	Ser	Gly	Ser	Gly	Glu	Lys	Val	Ser	Val	Ser	Lys	Met	Ala		
	50				55					60							
Ala	Ala	Trp	Pro	Ser	Gly	Pro	Ser	Ala	Pro	Glu	Ala	Val	Thr	Ala	Arg		
65				70					75					80			
Leu	Val	Gly	Val	Leu	Trp	Phe	Val	Ser	Val	Thr	Thr	Gly	Pro	Trp	Gly		
				85					90					95			

Ala	Val	Ala	Thr	Ser	Ala	Gly	Gly	Glu	Glu	Ser	Leu	Lys	Cys	Glu	Asp
			100					105					110		
Leu	Lys	Val	Gly	Gln	Tyr	Ile	Cys	Lys	Asp	Pro	Lys	Ile	Asn	Asp	Ala
		115					120					125			
Thr	Gln	Glu	Pro	Val	Asn	Cys	Thr	Asn	Tyr	Thr	Ala	His	Val	Ser	Cys
	130					135					140				
Phe	Pro	Ala	Pro	Asn	Ile	Thr	Cys	Lys	Asp	Ser	Ser	Gly	Asn	Glu	Thr
145					150					155				160	
His	Phe	Thr	Gly	Asn	Glu	Val	Gly	Phe	Phe	Lys	Pro	Ile	Ser	Cys	Arg
				165				170						175	
Asn	Val	Asn	Gly	Tyr	Ser	Tyr	Lys	Val	Ala	Val	Ala	Leu	Ser	Leu	Phe
			180					185					190		
Leu	Gly	Trp	Leu	Gly	Ala	Asp	Arg	Phe	Tyr	Leu	Gly	Tyr	Pro	Ala	Leu
		195					200					205			
Gly	Leu	Leu	Lys	Phe	Cys	Thr	Val	Gly	Phe	Cys	Gly	Ile	Gly	Ser	Leu
	210					215					220				
Ile	Asp	Phe	Ile	Leu	Ile	Ser	Met	Gln	Ile	Val	Gly	Pro	Ser	Asp	Gly
225					230					235				240	
Ser	Ser	Tyr	Ile	Ile	Asp	Tyr	Tyr	Gly	Thr	Arg	Leu	Thr	Arg	Leu	Ser
				245					250					255	
Ile	Thr	Asn	Glu	Thr	Phe	Arg	Lys	Thr	Gln	Leu	Tyr	Pro			
			260					265							

<210> 3
 <211> 208
 <212> PRT
 <213> Mus musculus

<400> 3

Met	Ala	Ala	Ala	Trp	Pro	Ala	Gly	Arg	Ala	Ser	Pro	Ala	Ala	Gly	Pro
1				5					10					15	
Pro	Gly	Leu	Leu	Arg	Thr	Leu	Trp	Leu	Val	Thr	Val	Ala	Ala	Gly	His
			20					25					30		
Cys	Gly	Ala	Ala	Ala	Ser	Gly	Ala	Val	Gly	Gly	Glu	Glu	Thr	Pro	Lys
		35					40					45			
Cys	Glu	Asp	Leu	Arg	Val	Gly	Gln	Tyr	Ile	Cys	Lys	Glu	Pro	Lys	Ile
	50					55					60				
Asn	Asp	Ala	Thr	Gln	Glu	Pro	Val	Asn	Cys	Thr	Asn	Tyr	Thr	Ala	His
65					70					75				80	
Val	Gln	Cys	Phe	Pro	Ala	Pro	Lys	Ile	Thr	Cys	Lys	Asp	Leu	Ser	Gly
			85						90					95	
Asn	Glu	Thr	His	Phe	Thr	Gly	Ser	Glu	Val	Gly	Phe	Leu	Lys	Pro	Ile
			100					105					110		
Ser	Cys	Arg	Asn	Val	Asn	Gly	Tyr	Ser	Tyr	Lys	Val	Ala	Val	Ala	Leu
		115					120					125			
Ser	Leu	Phe	Leu	Gly	Trp	Leu	Gly	Ala	Asp	Arg	Phe	Tyr	Leu	Gly	Tyr
	130					135					140				
Pro	Ala	Leu	Gly	Leu	Leu	Lys	Phe	Cys	Thr	Val	Gly	Phe	Cys	Gly	Ile
145					150					155				160	
Gly	Ser	Leu	Ile	Asp	Phe	Ile	Leu	Ile	Ser	Met	Gln	Ile	Val	Gly	Pro
				165					170					175	
Ser	Asp	Gly	Ser	Ser	Tyr	Ile	Ile	Asp	Tyr	Tyr	Gly	Thr	Arg	Leu	Thr
			180					185					190		
Arg	Leu	Ser	Ile	Thr	Asn	Glu	Thr	Phe	Arg	Lys	Thr	Gln	Leu	Tyr	Pro
		195					200					205			

<210> 4
 <211> 178
 <212> PRT
 <213> Drosophila melanogaster

<400> 4

Met	Phe	Pro	Val	Leu	Leu	Leu	Leu	Leu	Phe	Phe	Phe	Ala	Lys	Glu	Thr
1				5					10					15	
His	Gln	Ile	Asn	Val	Asp	Cys	Asn	Glu	Leu	Gln	Met	Met	Gly	Gln	Phe
			20					25					30		
Met	Cys	Pro	Asp	Pro	Ala	Arg	Gly	Gln	Ile	Asp	Pro	Lys	Thr	Gln	Gln
		35					40					45			
Leu	Ala	Gly	Cys	Thr	Arg	Glu	Gly	Arg	Ala	Arg	Val	Trp	Cys	Ile	Ala
	50					55					60				
Ala	Asn	Glu	Ile	Asn	Cys	Thr	Glu	Thr	Gly	Asn	Ala	Thr	Phe	Thr	Arg
65					70					75				80	
Glu	Val	Pro	Cys	Lys	Trp	Thr	Asn	Gly	Tyr	His	Leu	Asp	Thr	Thr	Leu
			85					90					95		
Leu	Leu	Ser	Val	Phe	Leu	Gly	Met	Phe	Gly	Val	Asp	Arg	Phe	Tyr	Leu
		100					105						110		
Gly	Tyr	Pro	Gly	Ile	Gly	Leu	Leu	Lys	Phe	Cys	Thr	Leu	Gly	Gly	Met
	115					120						125			
Phe	Leu	Gly	Gln	Leu	Ile	Asp	Ile	Val	Leu	Ile	Ala	Leu	Gln	Val	Val
	130				135						140				
Gly	Pro	Ala	Asp	Gly	Ser	Ala	Tyr	Val	Ile	Pro	Tyr	Tyr	Gly	Ala	Gly
145					150					155				160	
Ile	His	Ile	Val	Arg	Ser	Asp	Asn	Thr	Thr	Tyr	Arg	Leu	Pro	Arg	Asp
			165					170						175	

Asp Trp

<210> 5
 <211> 214
 <212> PRT
 <213> Homo sapiens

<400> 5

Met	Val	Leu	Gly	Gly	Cys	Pro	Val	Ser	Tyr	Leu	Leu	Leu	Cys	Gly	Gln
1				5					10					15	
Ala	Ala	Leu	Leu	Gly	Asn	Leu	Leu	Leu	Leu	His	Cys	Val	Ser	Arg	
		20					25					30			
Ser	His	Ser	Gln	Asn	Ala	Thr	Ala	Glu	Pro	Glu	Leu	Thr	Ser	Ala	Gly
		35				40						45			
Ala	Ala	Gln	Pro	Glu	Gly	Pro	Gly	Gly	Ala	Ala	Ser	Trp	Glu	Tyr	Gly
	50					55					60				
Asp	Pro	His	Ser	Pro	Val	Ile	Leu	Cys	Ser	Tyr	Leu	Pro	Asp	Glu	Phe
65					70					75				80	
Ile	Glu	Cys	Glu	Asp	Pro	Val	Asp	His	Val	Gly	Asn	Ala	Thr	Ala	Ser
			85					90					95		
Gln	Glu	Leu	Gly	Tyr	Gly	Cys	Leu	Lys	Phe	Gly	Gly	Gln	Ala	Tyr	Ser
		100						105					110		
Asp	Val	Glu	His	Thr	Ser	Val	Gln	Cys	His	Ala	Leu	Asp	Gly	Ile	Glu
	115					120						125			
Cys	Ala	Ser	Pro	Arg	Thr	Phe	Leu	Arg	Glu	Asn	Lys	Pro	Cys	Ile	Lys
	130				135						140				
Tyr	Thr	Gly	His	Tyr	Phe	Ile	Thr	Thr	Leu	Leu	Tyr	Ser	Phe	Phe	Leu
145					150					155				160	
Gly	Cys	Phe	Gly	Val	Asp	Arg	Phe	Cys	Leu	Gly	His	Thr	Gly	Thr	Ala
			165					170						175	

Val Gly Lys Leu Leu Thr Leu Gly Gly Leu Gly Ile Trp Trp Phe Val
180 185 190
Asp Leu Ile Leu Leu Ile Thr Gly Gly Leu Met Pro Ser Asp Gly Ser
195 200 205
Asn Trp Cys Thr Val Tyr
210

<210> 6
<211> 213
<212> PRT
<213> Mus musculus

<400> 6

Met Val Leu Gly Gly Cys Pro Val Ser Tyr Leu Leu Leu Cys Gly Gln
1 5 10 15
Ala Ala Leu Leu Leu Gly Asn Leu Leu Leu His Cys Val Ser Arg
20 25 30
Ser His Ser Gln Asn Ala Thr Ala Glu Pro Glu Leu Thr Pro Ser Gly
35 40 45
Ala Ala His Leu Glu Gly Pro Ala Ala Ser Ser Trp Glu Tyr Ser Asp
50 55 60
Pro Asn Ser Pro Val Ile Leu Cys Ser Tyr Leu Pro Asp Glu Phe Val
65 70 75 80
Asp Cys Asp Ala Pro Val Asp His Val Gly Asn Ala Thr Ala Ser Gln
85 90 95
Glu Leu Gly Tyr Gly Cys Leu Lys Phe Gly Gly Gln Ala Tyr Ser Asp
100 105 110
Val Gln His Thr Ala Val Gln Cys Arg Ala Leu Glu Gly Ile Glu Cys
115 120 125
Ala Ser Pro Arg Thr Phe Leu Arg Glu Asn Lys Pro Cys Ile Lys Tyr
130 135 140
Thr Gly His Tyr Phe Ile Thr Thr Leu Leu Tyr Ser Phe Phe Leu Gly
145 150 155 160
Cys Phe Gly Val Asp Arg Phe Cys Leu Gly His Thr Gly Thr Ala Val
165 170 175
Gly Lys Leu Leu Thr Leu Gly Gly Leu Gly Ile Trp Trp Phe Val Asp
180 185 190
Leu Ile Leu Leu Ile Thr Gly Gly Leu Met Pro Ser Asp Gly Ser Asn
195 200 205
Trp Cys Thr Val Tyr
210

<210> 7
<211> 224
<212> PRT
<213> Drosophila melanogaster

<400> 7

Met Arg Ile Phe Tyr Gly Leu Leu Ala Phe Leu Val Ala Arg Gln His
1 5 10 15
Asp Ala Gln Ala Ile Gln Ala Arg Ser Asp Lys Glu Gln Pro Gln Thr
20 25 30
Val Val Ser Gly Thr Ala Val Gln Ser Val Val Pro Val Gln Ala Gln
35 40 45
Leu Gly Ser Gly Met Gly Pro Ser Ser Ser Ser Ser Ala Ser Ser
50 55 60
Ala Ser Gly Gly Ala Gly Asn Ser Ala Phe Tyr Pro Leu Gly Pro Asn
65 70 75 80
Val Met Cys Ser Phe Leu Pro Arg Asp Phe Leu Asp Cys Lys Asp Pro

				85				90						95			
Val	Asp	His	Arg	Glu	Asn	Ala	Thr	Ala	Gln	Gln	Glu	Lys	Lys	Tyr	Gly		
				100				105					110				
Cys	Leu	Lys	Phe	Gly	Gly	Ser	Thr	Tyr	Glu	Glu	Val	Glu	His	Ala	Met		
		115					120					125					
Val	Trp	Cys	Thr	Val	Phe	Ala	Asp	Ile	Glu	Cys	Tyr	Gly	Asn	Arg	Thr		
	130					135						140					
Phe	Leu	Arg	Ala	Gly	Val	Pro	Cys	Val	Arg	Tyr	Thr	Asp	His	Tyr	Phe		
145					150					155					160		
Val	Thr	Thr	Leu	Ile	Tyr	Ser	Met	Leu	Leu	Gly	Phe	Leu	Gly	Met	Asp		
			165						170					175			
Arg	Phe	Cys	Leu	Gly	Gln	Thr	Gly	Thr	Ala	Val	Gly	Lys	Leu	Leu	Thr		
			180					185					190				
Met	Gly	Gly	Val	Gly	Val	Trp	Trp	Ile	Ile	Asp	Val	Ile	Leu	Leu	Ile		
		195				200						205					
Thr	Asn	Asn	Leu	Leu	Pro	Glu	Asp	Gly	Ser	Asn	Trp	Asn	Pro	Tyr	Val		
	210					215					220						

<210> 8
 <211> 221
 <212> PRT
 <213> Homo sapiens

<400> 8

Met	Ala	Gly	Gly	Val	Arg	Pro	Leu	Arg	Gly	Leu	Arg	Ala	Leu	Cys	Arg		
1				5					10					15			
Val	Leu	Leu	Phe	Leu	Ser	Gln	Phe	Cys	Ile	Leu	Ser	Gly	Gly	Glu	Ser		
			20					25					30				
Thr	Glu	Ile	Pro	Pro	Tyr	Val	Met	Lys	Cys	Pro	Ser	Asn	Gly	Leu	Cys		
		35					40					45					
Ser	Arg	Leu	Pro	Ala	Asp	Cys	Ile	Asp	Cys	Thr	Thr	Asn	Phe	Ser	Cys		
	50					55					60						
Thr	Tyr	Gly	Lys	Pro	Val	Thr	Phe	Asp	Cys	Ala	Val	Lys	Pro	Ser	Val		
65					70					75				80			
Thr	Cys	Val	Asp	Gln	Asp	Phe	Lys	Ser	Gln	Lys	Asn	Phe	Ile	Ile	Asn		
				85					90					95			
Met	Thr	Cys	Arg	Phe	Cys	Trp	Gln	Leu	Pro	Glu	Thr	Asp	Tyr	Glu	Cys		
			100					105					110				
Thr	Asn	Ser	Thr	Ser	Cys	Met	Thr	Val	Ser	Cys	Pro	Arg	Gln	Arg	Tyr		
		115					120						125				
Pro	Ala	Asn	Cys	Thr	Val	Arg	Asp	His	Val	His	Cys	Leu	Gly	Asn	Arg		
	130					135						140					
Thr	Phe	Pro	Lys	Met	Leu	Tyr	Cys	Asn	Trp	Thr	Gly	Gly	Tyr	Lys	Trp		
145					150					155				160			
Ser	Thr	Ala	Leu	Ala	Leu	Ser	Ile	Thr	Leu	Gly	Gly	Phe	Gly	Ala	Asp		
			165						170					175			
Arg	Phe	Tyr	Leu	Gly	Gln	Trp	Arg	Glu	Gly	Leu	Gly	Lys	Leu	Phe	Ser		
			180					185					190				
Phe	Gly	Gly	Leu	Gly	Ile	Trp	Thr	Leu	Ile	Asp	Val	Leu	Leu	Ile	Gly		
		195				200						205					
Val	Gly	Tyr	Val	Gly	Pro	Ala	Asp	Gly	Ser	Leu	Tyr	Ile					
	210					215					220						

<210> 9
 <211> 229
 <212> PRT
 <213> Mus musculus

<400> 9

```

Met Glu Ala Val Ala Arg Ser Leu Arg Ser Val Arg His Leu Ser Arg
1      5      10      15
Val Leu Leu Phe Leu Ser Gln Cys Tyr Ile Leu Ser Gly Asp Glu Asn
      20      25      30
Gln Leu Phe Ser His Leu Thr Glu Ser Thr Glu Ile Pro Pro Tyr Val
      35      40      45
Met Lys Cys Pro Ser Asn Gly Leu Cys Ser Arg Leu Pro Ala Asp Cys
      50      55      60
Ile Glu Cys Ala Thr Asn Val Ser Cys Thr Tyr Gly Lys Pro Val Thr
65      70      75      80
Phe Asp Cys Thr Val Lys Pro Ser Val Thr Cys Val Asp Gln Asp Leu
      85      90      95
Lys Pro Gln Arg Asn Phe Val Ile Asn Met Thr Cys Arg Phe Cys Trp
      100     105     110
Gln Leu Pro Glu Thr Asp Tyr Glu Cys Ser Asn Ser Thr Thr Cys Met
      115     120     125
Thr Val Ala Cys Pro Arg Gln Arg Tyr Phe Ala Asn Cys Thr Val Arg
      130     135     140
Asp His Ile His Cys Leu Gly Asn Arg Thr Phe Pro Lys Leu Leu Tyr
145      150     155     160
Cys Asn Trp Thr Gly Gly Tyr Lys Trp Ser Thr Ala Leu Ala Leu Ser
      165     170     175
Ile Thr Leu Gly Gly Phe Gly Ala Asp Arg Phe Tyr Leu Ala Gln Trp
      180     185     190
Arg Glu Gly Leu Gly Lys Leu Phe Ser Phe Gly Gly Leu Gly Ile Trp
      195     200     205
Thr Leu Asp Val Leu Leu Ile Gly Val Gly Tyr Val Gly Pro Ala Asp
      210     215     220
Gly Ser Leu Tyr Ile
225

```

<210> 10
 <211> 284
 <212> PRT
 <213> Drosophila melanogaster

<400> 10

```

Met Arg Leu Gln Arg Gln Cys Ile Val Val Asn Met Arg Ser Ala Ile
1      5      10      15
Val Leu Ile Met Ile Phe Val Leu Thr Gly Ile Arg Asn Ser Glu Thr
      20      25      30
Ala Ser Gly Gly Asn Gln Met Asp Leu Ser Asp Ser Lys Gly Asp His
      35      40      45
Lys Asp Asn Ser Asn Ala Ser Asn Gly Asn Gly Asn Ala Asn Asp Asn
      50      55      60
Glu Val Tyr Val Pro Pro Leu Val Ser Ser Met Val Ala Lys Ser Gly
65      70      75      80
Gly Gly Ala Gly Gly Leu Leu Asp Asn Ile Thr Ala Tyr Ser Ser Ser
      85      90      95
Ser Ser Ser Ser Ser Asn Gly Asn Asn Asn Met Leu Cys Pro Tyr
      100     105     110
Asp Lys Glu Thr Pro Cys Asp Arg Leu Gln Phe Pro Cys Ile Arg Cys
      115     120     125

```

Asn Tyr Asn His Gly Cys Ile Tyr Gly Arg Asp Leu Asn Val Thr Cys
 130 135 140
 Glu Val Ile Asn Asn Val Gln Cys Leu Gly Glu Arg Ser Phe Gln Arg
 145 150 155 160
 Gln Met Asn Cys Arg Tyr Cys Tyr Gln Thr Glu Met Trp Gln Gln Ser
 165 170 175
 Cys Gly Gln Arg Ser Ser Cys Asn Ser Ala Thr Asp Lys Leu Phe Arg
 180 185 190
 Thr Asn Cys Thr Val His His Asp Val Leu Cys Leu Gly Asn Arg Ser
 195 200 205
 Phe Thr Arg Asn Leu Arg Cys Asn Trp Thr Gln Gly Tyr Arg Trp Ser
 210 215 220
 Thr Ala Leu Leu Ile Ser Leu Thr Leu Gly Gly Phe Gly Ala Asp Arg
 225 230 235 240
 Phe Tyr Leu Gly His Trp Gln Glu Gly Ile Gly Lys Leu Phe Ser Phe
 245 250 255
 Gly Gly Leu Gly Val Trp Thr Ile Ile Asp Val Leu Leu Ile Ser Met
 260 265 270
 His Tyr Leu Gly Pro Ala Asp Gly Ser Leu Tyr Ile
 275 280

<210> 11
 <211> 292
 <212> DNA
 <213> Homo sapiens

<400> 11
 ggggtttgtg gaattgggag cctaattgat ttcattctta tttcaatgca gagacagggt 60
 cttgctctgt tgcccaggct ggagtgcagt ggcgtgatca taactcattg cagcctcgaa 120
 ttcctgggtt caaacaatct tcctgcctca gcctcccatc cagtatggga tattttaaaa 180
 gattgttgga ccttcagatg gaagtagtta cattatagat tactatggaa ccagacttac 240
 aagactgagt attactaatg aaacatttag aaaaacgcaa ttatatccat aa 292

<210> 12
 <211> 68
 <212> PRT
 <213> Homo sapiens

<400> 12

Gly Phe Cys Gly Ile Gly Ser Leu Ile Asp Phe Ile Leu Ile Ser Met
 1 5 10 15
 Gln Arg Gln Gly Leu Ala Leu Leu Pro Arg Leu Glu Cys Ser Gly Val
 20 25 30
 Ile Ile Thr His Cys Ser Leu Glu Phe Leu Gly Ser Asn Asn Leu Pro
 35 40 45
 Ala Ser Ala Ser His Pro Val Trp Asp Ile Leu Lys Asp Cys Trp Thr
 50 55 60
 Phe Arg Trp Lys
 65

<210> 13
 <211> 1246
 <212> DNA
 <213> Homo sapiens

<400> 13
 agcgggtgaa gcacctgatt gcctaaacca ctcgtttctt tctccagca ctcaaagatt 60
 aaccttagct ccttccaagg gttcgtgggg gaaaattcgc ctcgaggagac tgggtacatg 120
 catattttta aagggtctcc caatgtgatt ccacgggctc acgggcagaa gaacacgcga 180
 agagacggaa ctggcctcta tcctatgcga ggtcccttta agaacctcgc cctgttgccc 240

ttctccctcc	cgctcctggg	cggaggcgga	agcggaagt	gcgagaaagt	gtcgggtctcc	300
aagatggcgg	ccgcctggcc	gtctggtccg	tctgctccg	aggccgtgac	ggccagactc	360
gttggtgtcc	tgtggttcgt	ctcagtcact	acaggaccct	ggggggctgt	tgccacctcc	420
gccggggcgg	aggagtcgct	taagtgcgag	gacctcaaag	tgggacaata	tatttgtaaa	480
gatccaaaaa	taaatagcgc	tacgcaagaa	ccagttaact	gtacaaacta	cacagctcat	540
gtttcctgtt	ttccagcacc	caacataact	tgtaaggatt	ccagtggcaa	tgaaacacat	600
tttactggga	acgaagttgg	ttttttcaag	cccatactct	gccgaaatgt	aaatggctat	660
tcctacaaag	tggcagtcgc	attgtctctt	tttcttggtg	ggttggggagc	agatcgattt	720
taccttggtg	accctgcttt	gggtttgtta	aagttttgca	ctgtagggtt	ttgtggaatt	780
gggagcctaa	ttgatttcat	tcttatttca	atgcagattg	ttggaccttc	agatggaagt	840
agttacatta	tagattacta	tgggaaccaga	cttacaagac	tgagtattac	taatgaaaca	900
tttagaaaaa	cgcaattata	tccataaata	tttttagaag	aaacagattt	gagcctcctt	960
gattttaata	gagaacttct	agtgtatgga	tttaaagatt	tctctttttc	attcatatac	1020
cattttatga	gttctgtata	atttttgtgg	tttttgtttt	gttgagttaa	agtatgttat	1080
tgtgagattt	atttaatatg	acttcctttg	aaagctgtat	aatagtgttt	ctcgggcttc	1140
tgtctctatg	agagatagct	tattactctg	atactcttta	atctttttaca	aaggcaagtt	1200
gccacttgct	atttttgttt	ctgaaaaata	aaagtataac	ttattc		1246

<210> 14
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> 5' Primer

<400> 14
 ccattggatgc agaattccga c 21

<210> 15
 <211> 32
 <212> DNA
 <213> Artificial

<220>
 <223> 5' Primer

<400> 15
 aagcttgtcg acttacgcta tgacaacaac gc 32

<210> 16
 <211> 28
 <212> DNA
 <213> Artificial

<220>
 <223> 5' Primer

<400> 16
 aagcttaaga tggatgcaga attccgac 28

<210> 17
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> 5' Primer

<400> 17
 tttaatacca ctacaatgga t 21

<210>	18	
<211>	21	
<212>	DNA	
<213>	Artificial	
<220>		
<223>	5' Primer	
<400>	18	
	ttttcagtat ctacgattca t	21
<210>	19	
<211>	21	
<212>	DNA	
<213>	Artificial	
<220>		
<223>	5' Primer	
<400>	19	
	tttaatacca ctacaatgga t	21
<210>	20	
<211>	29	
<212>	DNA	
<213>	Artificial	
<220>		
<223>	5' Primer	
<400>	20	
	ctcgagttaa aatcgatctg ctcccaacc	29
<210>	21	
<211>	26	
<212>	DNA	
<213>	Artificial	
<220>		
<223>	5' Primer	
<400>	21	
	gaattccaaa aataaatgac gctacg	26
<210>	22	
<211>	29	
<212>	DNA	
<213>	Artificial	
<220>		
<223>	5' Primer	
<400>	22	
	ctcgagtcaa gatatgggct tgaaaaaac	29

<210> 23
 <211> 30
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 23
 ccttccatgg aagtggcagt cgcattgtct 30

 <210> 24
 <211> 32
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 24
 aacactcgag tcaaaaccct acagtgcaaa ac 32

 <210> 25
 <211> 22
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 25
 gtggatccac tgcttcgagg at 22

 <210> 26
 <211> 28
 <212> DNA
 <213> Artificial

 <220>
 <223> Antisense 5' Primer

 <400> 26
 gtcgacgggt gctatacagg acaagagg 28

 <210> 27
 <211> 22
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 27
 gtggatccag tgcttcaatg at 22

<210> 28
 <211> 28
 <212> DNA
 <213> Artificial

 <220>
 <223> Antisense 5' Primer

 <400> 28
 gtcgactaaa tttgggcggt cccttctt 28

 <210> 29
 <211> 22
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 29
 gtggatccac tgctttgagg gt 22

 <210> 30
 <211> 28
 <212> DNA
 <213> Artificial

 <220>
 <223> Antisense 5' Primer

 <400> 30
 gtcgacggtc ttcttgcccc catcttcc 28

 <210> 31
 <211> 50
 <212> DNA
 <213> Artificial

 <220>
 <223> Antisense 5' Primer

 <400> 31
 atatggccat ggatgcagaa ttcggacatg actcaggatt tgaagttcgt 50

 <210> 32
 <211> 20
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 32
 tgacctacag gaaagagtta 20

<210> 33
 <211> 45
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 33
 ccaggcggcc gccatcttgg agaccgacac tttctcgcca cttcc 45

 <210> 34
 <211> 24
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 34
 gttatgttgg gtgctggaaa acag 24

 <210> 35
 <211> 44
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 35
 ctaatacgac tcactatagg gctcgagcgg ccgcccgggc aggt 44

 <210> 36
 <211> 27
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 36
 ccataccta acgactcact atagggc 27

 <210> 37
 <211> 23
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 37
 ccagacggcc aggcggccgc cat 23

<210> 38
 <211> 23
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 38
 actcactata gggctcgagc ggc 23

 <210> 39
 <211> 23
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 39
 gccgccatct tggagaccga cac 23

 <210> 40
 <211> 40
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 40
 taatagcact cactataggg ttagaagaaa cagatttgag 40

 <210> 41
 <211> 40
 <212> DNA
 <213> Artificial

 <220>
 <223> Reverse 5' Primer

 <400> 41
 attaaccctc actaaagggg caagtggcaa cttgcctttg 40

 <210> 42
 <211> 10
 <212> PRT
 <213> Artificial

 <220>
 <223> myc epitope

 <400> 42

 Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
 1 5 10

<210> 43
 <211> 75
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 43
 gcaggatccc caccatggag cagaagctga tcagcgagga ggacctgcat attttaaaag 60
 ggtctcccaa tgtga 75

 <210> 44
 <211> 22
 <212> DNA
 <213> Artificial

 <220>
 <223> Reverse 5' Primer

 <400> 44
 tcacggcctc cggagcagac gg 22

 <210> 45
 <211> 33
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 45
 tgggtgaattc gaaagtgtcg gtctccaaga tgg 33

 <210> 46
 <211> 33
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 46
 cttcgtcgac ttatggatat aattgcgttt ttc 33

 <210> 47
 <211> 34
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 47
 ggttgggagc agatgaattt taccttggat accc 34

<210> 48
 <211> 23
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 48
 cgaggagtcg cttaagtgcg agg 23

 <210> 49
 <211> 25
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 49
 cagtcttgta agtctgggtc catag 25

 <210> 50
 <211> 23
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 50
 ggcactttca gaggaccgag aag 23

 <210> 51
 <211> 24
 <212> DNA
 <213> Artificial

 <220>
 <223> 5' Primer

 <400> 51
 atatcccata ctggatggag gctg 24

 <210> 52
 <211> 5
 <212> PRT
 <213> Artificial

 <220>
 <223> motif

 <220>
 <221> misc_feature
 <222> (2)..(2)
 <223> Xaa represents any amino acid

 <400> 52

 Pro Xaa Asp Gly Ser
 1 5